

ABSTRACT

5 A method for optimal workforce scheduling is disclosed for an environment in which
workload due to a plurality of contact types vary both during the course of an operating
day and from one day to another during scheduling period (e.g. a week). The method
begins by acquiring agent and skill requirements for all periods and contact types to be
scheduled. The method also acquires the contact center information including agent skill
10 groups, agent work groups, tour and shift scheduling rules, agent availability, objective
criterion to be optimized and its parameters. The method then develops a Mixed Integer
Programming (MILP) model for the scheduling environment to meet all requirements and
constraints. The method applies an optimization algorithm that uses the Branch and Cut
(B&C) algorithm with a Rounding Algorithm to improve performance. The MILP
15 models disclosed use an innovative implicit break and days-off scheduling approach to
reduce the size of the MILP problem to be solved. The method is unique in it's ability to
locate a globally optimal workforce schedule with the lowest possible cost or paid (also
scheduled) time or the maximum agent satisfaction. Once an optimal solution to the
MILP model is found, a detailed optimal schedule is developed by assigning daily shifts
to work patterns and the breaks scheduled to daily shifts, and days off scheduled to
20 weekly tours.